

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 44

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte PAUL S. PALMITER
and
LAWRENCE H. WESTERLUND

Appeal No. 96-0423
Application 08/126,439¹

HEARD: April 7, 1999

Before THOMAS, DIXON, and FRAHM, Administrative Patent Judges.
THOMAS, Administrative Patent Judge.

DECISION ON APPEAL

¹ Application for patent filed September 24, 1993. According to appellants, the application is a continuation of Application 07/687,660, filed April 19, 1991, now abandoned.

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Appellants have appealed to the Board from the examiner's final rejection of claims 3, 10, 11 and 15 through 18, which constitute all the claims remaining in the application.

The sole independent claim 3 is reproduced below:

3. An apparatus for tracking satellite motion at an antenna, said antenna having a pointing axis with associated hour angle and declination, said apparatus comprising:

oscillation means for automatically imparting a periodic oscillation to the hour angle and the declination of said antenna.

The following references are relied on by the examiner:

Longhurst et al. (Longhurst) 21, 1978	4,126,865	Nov.
Crean 1986	4,628,323	Dec. 9,
Rothbarth et al. (Rothbarth) 8, 1987	4,692,771	Sep.
Gorton et al. (Gorton) 1991	5,077,561	Dec. 31,
	(filed May 8,	
1990)		

Claims 3, 10, 11, and 15 through 17 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Longhurst. These same claims also stand rejected under 35 U.S.C. § 102(e) as

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being anticipated by Gorton. Finally, all claims on appeal, claims 3, 10, 11 and 15 through 18 stand rejected under 35 U.S.C. § 103. As evidence of obviousness, the examiner presents Longhurst in view of Rothbarth and Crean.

Rather than repeat the positions of the appellants and the examiner, reference is made to the briefs and the answer for the respective details thereof.

OPINION

We reverse each of the respective rejections of the claims on appeal.

As to the rejection under 35 U.S.C. § 102 for the majority of the pending claims on appeal in view of Longhurst, we agree with the appellants' position at pages 5 and 6 of the brief that Longhurst within 35 U.S.C. § 102 does not teach periodic oscillation of his dish antenna 1 about the hour angle axis. This hour angle axis is initially set and then fixed as disclosed within this reference. This understanding, though expressed throughout the disclosure of Longhurst, is most succinctly stated in the abstract of the disclosure. Longhurst explicitly teaches that declination changes may be

automatically imparted on a periodic oscillatory basis, to the extent claimed, by means of the motorized arrangement 12 through 17 in the Figures 1 and 5 embodiments. In contrast, the corresponding teachings and showings with respect to these two embodiments and the written description portion of the specification of Longhurst makes clear that any changeability of the so-called hour angle of the antenna 1 about the polar axis of shaft 6 is done in an initial setting environment which remains fixed for any given satellite. Thus, there could be no periodic oscillation by any means according to the common, normal meanings of these terms to the extent claimed of the hour angle of the antenna 1 in Longhurst. Stated differently, there is no teaching in Longhurst that any movement of the antenna about the polar axis 6 occurs on a periodic or recurring and regular interval basis. Similarly, there is no oscillatory action of the antenna about the polar axis of shaft 6 such as to cause the antenna to swing backward and forward like a pendulum or backward and forward between two extremes on a periodic or regular basis. As disclosed, there can be no automatic imparting of such periodic oscillation of the hour angle in Longhurst as well.

The examiner's position is simply misplaced as to this aspect of the requirement of claim 3 on appeal. The adjustability of the hour angle in Figure 1 of Longhurst by means of the locking screw 8 about the polar axis of shaft 6 and by means of the hand crank arrangement 34 through 36 about the same axis in the Figure 5 embodiment, contrary to the examiner's assertions, is not automatic and not periodic and not oscillatory as taught in Longhurst. In the context of the rejection under

35 U.S.C. § 103, the examiner's position at page 5 of the answer appears to recognize that the manual oscillatory adjustability of the antenna structure in Longhurst is not automatic to the extent claimed anyway. In view of the foregoing, the decision of the examiner rejecting claims 3, 10, 11 and 15 through 17 under 35 U.S.C. § 102 as anticipated by Longhurst is reversed.

Turning next to the rejection under 35 U.S.C. § 102 of the same claims in view of Gorton, we also reverse this rejection. Contrary to the assertions of the examiner at page 4 of the answer, there is no periodic oscillation let alone an automatic periodic oscillation to both the hour angle and the

declination adjustments in the antenna structure in Gorton. We do, however, recognize that Gorton does explicitly teach a periodic oscillatory motion of the antenna to follow a satellite on a sidereal day basis only for the declination adjustability of his antenna in this reference. To the extent, for example, the abstract of Gorton expresses that the antenna may automatically adjust the declination angle of the antenna as a function of time, it would necessarily do it on a periodic oscillatory basis for a given sidereal day in an effort to maximize the signal strength received in the antenna from the satellite. This aspect is brought out among the various flow chart figures and the written description of Gorton relating to the computerized control of the motor arrangement 80 by the computer 20 in Figure 1.

We make reference on our own to the initializing flow chart Figure 4 of Gorton and its flow chart steps 112 through 116 as well as column 7, lines 29 through 36. It appears that the reference as a whole teaches that the so-called North-South movability of the antenna corresponds to declination angle changes, whereas the discussion at this location appears

to suggest an East-West changeability of the antenna, thus suggesting an ability to perhaps move the antenna with respect to hour angle changes. This teaching and showing have not been relied upon by the examiner and there is no clear teaching anyway in this portion of Gorton that any East-West movement of the antenna would be on a periodic, oscillatory basis as required by claim 3 on appeal for the hour angle feature recited.

Therefore, the rejection of claims 3, 10, 11 and 15 through 17 under 35 U.S.C. § 102 as being anticipated by Gorton is also reversed.

Finally, we turn to the rejection of claims 3, 10, 11, and 15 through 18 under 35 U.S.C. § 103. As noted earlier, Longhurst specifically and explicitly indicates that there is a periodic declination oscillatory action of the antenna while it generally remains fixed with a constant hour angle. The discussion at columns 1 and 2 of Longhurst suggests that this action is tolerable for an antenna arrangement of small size to adequately sense signals from geostationary satellites. However, the teaching at column 2, beginning at line 10 by inference would have indicated to the artisan that an entirely

different situation would exist for large earth station satellite antennas. At least with respect to the initial paragraphs of the background and summary of the invention at column 1 of Rothbarth, similar assessments are made. Indeed, it is indicated that on the one hand that while larger dish sizes of antennas adds to performance, these sizes create problems of focussing the dish on individual satellites, keeping them focussed on the desired satellite and also moving them from satellite to the satellite.

In view of the foregoing, in particular the combined teachings of the assessment of both of these references of the prior art, there is a strong suggestibility in our view that for larger antenna structures there is a need for automatically changing on a similar periodic basis as done in Longhurst both the hour angle and the declination. Thus, in accordance with the teaching in Rothbarth that the hour angle changes may be motorized, in conjunction with a similar teaching in Crean, the artisan clearly would have come to the conclusion that in order maintain and follow the Figure 8 path of a

geosynchronous satellite as discussed in the paragraph bridging columns 1 and 2 of Longhurst, the artisan would have needed to perform an automatic periodic oscillatory tracking arrangement for both the hour angle and declination to maximize signal strength by utilizing the motorized arrangement of Longhurst, especially in view of the teachings of motorizing the hour angle changes of satellites from Rothbarth and Crean. At a minimum, therefore, it appears to us that the examiner has presented a prima facie case of obviousness of independent claim 3 on appeal. The collective teachings of the three references also would have indicated to the artisan the desirability of the combination since the ability to track utilizing the combined structure more than one satellite would have been clearly an obvious advantage to the combination as well.

On the other hand, we must reverse the rejection because the examiner has not come to grips with the full meaning of the "oscillation means" recitation in the body of claim 3 on appeal. The combined teachings of the references for this rejection under 35 U.S.C. § 103 would have indicated to the artisan separate motorized arrangements for automatically

imparting a periodic oscillation to the antenna structure of the combined teachings to the hour angle and to the declination of the antenna. We are persuaded by appellants' reasoning at the following portions of the brief and reply brief respectively:

Furthermore, if the references were combined in the manner suggested by the Examiner, the resulting device would have first means (i.e., the motor 40 in Rothbarth et al. or the motorized jack 94 in Crean) for imparting movement about the hour angle axis, and second means (i.e., the motor 11 in Longhurst et al.) for imparting movement about the declination axis. By way of contrast, the oscillation means recited in claim 3 is a single drive mechanism for automatically imparting periodic oscillation of the antenna about the hour angle axis and the declination axis. [Brief, bottom page 14.]

It is respectfully submitted that the Examiner is misapplying § 112, sixth paragraph, and the relevant case law (i.e., In re Donaldson) which requires "means plus function" limitations to be construed as corresponding to the structure disclosed in the specification and equivalent structure for performing the same function. The specification clearly discloses a single drive mechanism (see Fig. 5) for imparting periodic oscillation to the hour angle and the declination of the antenna, and thus the Examiner must construe claim 3 to cover the disclosed structure and equivalents thereof for performing the recited function. None of the cited references teach or suggest a single drive mechanism or its structural equivalent for imparting a periodic oscillation to the hour angle and the declination of the antenna.

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The Examiner is correct that a "means" may be a singular or plural. Whether the "means" is singular or plural is determined based on the structure disclosed in the specification. In the instant application, the specification discloses a single drive mechanism for imparting periodic oscillation to the hour angle and declination of the antenna. Thus, in the instant claims, the "means" refers to a single drive mechanism (comprising a plurality of parts). Clearly, the specification does not disclose separate drive mechanisms, each corresponding to a respective axis of the antenna for imparting periodic oscillation about that axis. [Reply brief, pages 3-4.]

Page 2 of the principal brief on appeal indicates in the summary of the invention portion that the presently appealed claims are directed to the second embodiment set forth at Figures 4 through 7 of the disclosed invention where a single drive means imparts to the antenna periodic oscillatory movement of the declination and hour angle axis as well as the pointing axis. This second embodiment is described at page 4, line 30 through page 9 of the specification as filed. The antenna tracking apparatus described in this second embodiment and shown in Figures 4 through 7 relies upon a single electric motor and the appropriate mechanical hardware (including the gear reducer 68, the radius arm 66, the CVJ/cone arm combination in Figure 5) to provide the basis for the

oscillation means imparting an automatic periodic oscillation to the hour angle and declination of the antenna as claimed. The examiner's basic position in this rejection under 35 U.S.C. § 103, as amplified and embellished upon by our reasoning as set forth earlier, simply would not have led the artisan to the identical disclosed structure nor to the structural equivalent thereto in the manner claimed within the sixth paragraph of 35 U.S.C. § 112. Therefore, the decision of the examiner rejecting all the pending claims on appeal under 35 U.S.C. § 103 must be reversed.²

In view of the foregoing, the decisions of the examiner rejecting various claims under 35 U.S.C. § 102 and all claims on appeal under 35 U.S.C. § 103 are reversed.

REVERSED

² The claimed "apparatus" of claim 3 does not "comprise" a single means, that is, an oscillation means only since the body of the claim recites this means and the antenna initially set forth in the preamble.

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